



Gas installations

All gas fitting work must be carried out in accordance with the requirements of the *Gas Standards Act 1972* and supporting regulations, which are the:

- Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999; and
- Gas Standards (Gas Supply and System Safety) Regulations 2000.

This section of EnergySafety's website contains information on interpretations of specific Regulation or Standard requirements.

Note: Regulation 32(4) of the Regulations allows a six month transitional provision from the date of the amendment of any clauses in schedule 6 or the amendment of a standard referred to in schedule 7 of the Gas Standards (Gas fitting and Consumer Gas Installations) Regulations 1999 is recognised. For the standards listed in schedule 7, the recognition date and transition period are as tabulated:

Standard	Recognition date	Transition period end date
AS/NZS 5601, Part 1:2013	16 September 2013	16 March 2014
• Amendment 1:2015	27 August 2015	27 February 2016
• Amendment 2:2016	11 May 2016	11 November 2016
AS/NZS 5601, Part 2:2013	16 September 2013	16 March 2014
• Amendment 1:2016	11 May 2016	11 November 2016
• Amendment 2:2017	9 March 2017	9 September 2017
AS/NZS 1596:2014	19 May 2014	19 November 2014

Interpretations of specific Regulation or Standard requirements

Gas operatives and industry representatives may request Building and Energy to provide an interpretation of a specific requirement of regulations or standards that are listed in Schedule 7 of the Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999.

Request for interpretations should be submitted using a 'Request for interpretation of Regulation or Standard requirements' form.

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Gas Interpretation Number 05/01

Issue
1. May 'Philmac' olive type fittings be used above the ground or underground? 2. May Milne type compression fittings be used underground?

Relevant Regulation/Standard		
Regulation/Standard	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	4.3	Consumer piping restrictions (e)(i) Non-metallic fittings; shall not be used above ground. When used underground the assembled joints must be designed and installed so as to prevent 'pull out' during service.
	4.4	(c) Prohibited types of joints and fittings The following fitting shall not be used; a single plastic/rubber olive type fitting other than in a permanent joint.
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	401	Fitting lines and fittings (1) A fitting line or fitting on a consumers gas installation that is to operate at a pressure of 200kPa or less must comply with AS/NZS 5601.

Interpretation
1. 'Philmac' olive type fittings are not to be used above the ground or underground with the exception of the underground connection directly downstream of the meter/regulator manifold, beneath the gas meter box. A variation was issued under Regulation 32(3)(a) in December 1999 (refer to Gas Focus No. 17, May 2000). 2. 'Milne' type fittings when used underground that are not designed and installed so as to prevent 'pull out' during service may not be used.

Limitations
Only fittings designed and installed to prevent 'pull-out' during service may be used. Plastic/rubber olive type fittings do not adequately prevent pull out during service. Date of Issue: First issued July 2005; amended and re-issued April 2017.

Gas Interpretation Number 05/02

Issue
What is the separation from a consumer's gas pipe to PVC insulated electrical cables or wires and PVC electrical conduits (installed above ground)?

Relevant Regulation/Standard		
Regulation/Standard	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	5.3.4	Separation from above ground low and extra low voltage electrical equipment The separation shall be at least 25mm between any consumer piping and any above ground: (a) metal electrical conduit; (b) electrical wire or cable not in a conduit; or (c) electrical earthing electrode.

Interpretation
A 25mm clearance is required from metallic electrical conduits, electrical wires or cables not in a conduit and electrical earthing electrodes. Note: Cord and plug assemblies are not considered electrical wires or cables as defined in this clause.

Limitations
Cord and plug assemblies shall not be wrapped around or supported from gas piping. Date of Issue: First issued July 2005; amended and re-issued November 2016.

Gas Interpretation Number 05/03

Issue
What type of wall or fence is considered a durable structure for attaching consumer piping and appliances?

Relevant Regulation/Standard		
Regulation/Standard	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	5.3.1	<p>Location of consumer piping, prohibited locations</p> <p>Consumer piping shall not be installed in any of the following locations:</p> <p>(a) Attached to a fence.</p> <p>NOTE 2: A brick wall in sound condition used as a fence is generally deemed suitable.</p>
	6.2.10	<p>Gas appliance support</p> <p>Every gas appliance shall be supported on or secured to a durable structure that is appropriate for the use and location of the gas appliance.</p>

Interpretation
A brick wall or brick fence in sound condition is considered a 'permanent durable structure' and is therefore deemed suitable for attaching an appliance and/or consumer piping.
Other materials used to construct walls such as limestone, concrete and reconstituted limestone are also considered to be permanent durable structures and may also be utilised. However, if attaching copper piping to a limestone wall, appropriately secured standoff clips are required, to prevent corrosion.

Limitations
Fences constructed of materials such as wood, corrugated asbestos / cement sheeting, sheet metal and UPVC are not deemed as durable structures for the purpose of attaching consumer piping and appliances.

Date of Issue: First issued July 2005; amended and re-issued November 2016.

Gas Interpretation Number 05/04

Issue
Wall mounted water heating appliances (external balanced flue and continuous flow types) are being installed at heights that are deemed to be inaccessible for normal operation and servicing. Is there an acceptable height position for such water heaters above ground or floor level on residential premises or where these premises are more than one storey?

Relevant Regulation/Standard		
Regulation/ Standard number	Regulation/Section/ Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	1.8.1	Accessible Access can be gained without hazard or undue difficulty for inspection, repair, testing, renewal or operational purposes.
	6.3.3	Accessibility Gas appliances shall be installed only in accessible locations and with sufficient clearances to allow access to, and removal of, all serviceable components. NOTE: Removal of a panel or door to give access to a control compartment is acceptable.
	6.3.12	Location of appliances in residential premises Appliances in residential premises shall be located such that additional means of access as indicated in Clause 6.3.13 is not required. NOTE: Consideration should be given to future access for servicing, replacement and to local occupational health and safety requirements.
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	503(1)	Avoidance of hazards An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard.

Interpretation
Appliances in residential premises must be installed in accessible positions such that an additional means of access such as small scissor lifts, light duty aluminium mobile scaffolds, boom arms, modular scaffolding or elevating work platforms are not required. The intent is that access to the appliance must be gained without hazard or undue difficulty for installation and servicing or for operational purposes. Where this is impossible, then an alternative means of access may be acceptable to the Technical Regulator and arranged by the property owner or their representative.

Limitations
Any access provisions are subject to the requirements of the <i>Occupational Safety and Health Act 1984</i> and the <i>Occupational Safety and Health Regulations 1996</i> . The " <i>Code of Practice: Prevention of Falls at Workplaces</i> ", by the Commission for Occupational Safety and Health, is intended to provide practical guidance on meeting the requirements in Western Australia and is downloadable from www.dmirs.wa.gov.au/worksafe . Note: Portable extension or single ladders can only be used as a means of access to or egress from a work area and cannot be used as a working platform according to the <i>Code of Practice: Prevention of falls at workplaces</i> .

Date of Issue: First issued January 2006; amended and re-issued April 2017.

Gas Interpretation Number 05/05

Issue
Can flexible hose assemblies be used to connect flued and non-portable appliances?

Relevant Regulation/Standard		
Regulation/ Standard number	Regulation/Section/ Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	5.9.4(d)	Hose assembly – Prohibited installation methods A hose assembly shall not pass through the panel or casing of the appliance unless the appliance is specifically manufactured to avoid damage to the hose assembly.
	5.9.5	Hose assembly – Operating conditions Under normal operating conditions a hose assembly shall not be installed where, it will be: (a) exposed to a temperature exceeding the maximum temperature specified in the hose manufacturer's instructions; (b) subject to strain, abrasion, kinking or permanent deformation; or (c) subject to damage by vermin.
	6.10.1.9	Connecting a freestanding cooking appliance using a hose assembly – High level connection
	6.10.1.10	Under cooker connection A freestanding cooking appliance having an under cooker connection point shall not be connected to that point using a hose assembly.
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	20(1)(b)	Installation of an appliance, apparatus or part An appliance to be installed in accordance with any instructions or recommendations of the manufacturer.
	503	Avoidance of hazards An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard.

Interpretation

A manufacturer's installation instructions must specify the use of a flexible hose assembly for this type of connection. If the instructions do not specify a means of connection, the appliance must be connected with copper tube and the appropriate fittings. The only exception is for freestanding upright stoves that have a connection point at the rear of the appliance and do not have specific instructions or labelling prohibiting the use of flexible hoses.

Even though clause 6.10.1.10 states that a freestanding cooking appliance having an under cooker connection point shall not be connected to that point using a hose assembly, if the gas fitter or owner wants to use a hose assembly on a stove with an under cooker connection point, the gas fitter must extend a rigid [copper] pipe from the connection point under the cooker and up the back of the stove, terminating downwards. The gas connection point shall also terminate downwards. The hose assembly is then connected to these points hanging in a U-shape (Refer to clause 6.10.1.9).

Limitations

Various concerns:

- Incorrectly rated hoses may be used.
- Internal bore of hoses and fittings may be too small, restricting gas flow.
- Hose assemblies may be subject to significant conducted or radiant heat. For example, the connection to a Type 1 or 2 decorative log fire.
- Risk of a consumer attempting to move a flued or non-portable appliance (for cleaning) that may not be properly relocated, thus becoming a hazard.
- Hoses positioned in concealed locations, not accessible for inspection, subject to vermin damage.

Date of Issue: First issued January 2006; amended and re-issued November 2016.

Gas Interpretation Number 09/01

Issue
Can a gas appliance or cylinder be installed near an openable window and at less than the required clearances, when the window is permanently closed?

Relevant Regulation/Standard		
Regulation/ Standard number	Regulation/Section/ Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	6.9.3	<p>Location of flue terminals of balanced flue, room sealed, fan-assisted or outdoor appliances</p> <p>The location of the flue terminal of a balanced flue appliance, room sealed appliance, a fan-assisted appliance, room sealed appliance or an appliance designed for outdoor installation shall comply with Figure 6.2 (Openable window, minimum clearances j and n).</p>
AS/NZS 1596 - 2014	4.4.5	<p>Cylinders outdoors</p> <p>Clearances complying with figures 4.2 and 4.3 (Openable window, minimum vertical clearance 150mm for exchange cylinder) and at least one (1) metre from a building where the opening into the building is below the level of the cylinders pressure relief valve.</p>
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	503(1)	<p>Avoidance of hazards</p> <p>An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard.</p>

Interpretation
Clearances must be maintained from openable windows. Appliances may be installed near a window and at less than the required minimum clearances if the window is permanently closed. Effectively, the permanently closed window can be considered as part of the wall for installation, inspection and servicing and for operational purposes.

Limitations
The openable window must be securely fixed in place with a fixture or fitting. A tool must be required to remove the window fixture or fitting. For metallic or aluminium windows, rivets are to be used and for wooden windows non-retractable screws.

Date of Issue: First issued November 2009; amended and re-issued April 2017.

Gas Interpretation Number 09/02

Issue		
Can an ignition source of any kind be placed within a hazardous area around a 45 kg LP Gas cylinder?		
Relevant Regulation/Standard		
Regulation/Standard number	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 1596 - 2014	4.4.5	Cylinders outdoors Clearances complying with figures 4.2 and 4.3 (Openable window, minimum vertical clearance 150mm for exchange cylinder) and at least one (1) metre from a building where the opening into the building is below the level of the cylinders pressure relief valve.
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	503(1)	Avoidance of hazards An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard.
AS/NZS 3000 – 2007	2.9.2.5	Restricted locations Switchboards shall not be installed in hazardous areas as defined in AS/NZS 60079.10.1 or AS/NZS 60079.10.2.
	7.7.2.4	Electrical equipment Electrical equipment selected for use in hazardous areas shall comply with the appropriate requirements as specified in accordance with the requirements of AS/NZS 60079.14.

Interpretation
Ignition sources are to be clear of the hazardous area. This includes, but is not limited to electrical appliances or equipment, switchboards, switches, junction boxes, Telstra Network Termination Devices or NBN connection boxes , lighting or outlets; air conditioning units, heat pumps, ventilation fans, outdoor lighting, pool pumps, flares, hot surfaces, mechanical impact sparks, irrigation solenoids and any gas appliances.

Limitations
Appliance or equipment casings containing ignition sources, for example electric motors in air-conditioning split system condensing units, are to be placed outside the hazardous area. Appliance or equipment casings are not to be placed in the hazardous area.

Date of Issue: First issued November 2009; amended and re-issued April 2017.

Gas Interpretation Number 17/01

Issue
Permissible locations to install outdoor gas barbecues or radiant gas heaters.

Relevant Regulation/Standard		
Regulation/Standard	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 5601.1 - 2013	1.8.62	Indoor(s) Within a building, as defined by the appropriate national building code, or within a structure that is enclosed on all sides, as distinct from quasi-outdoor areas, balconies and the like.
	1.8.80	Outdoor(s) An above-ground open-air situation with natural ventilation, without stagnant areas, and where gas leakage and products of combustion are rapidly dispersed by wind and natural convection. NOTE: Appendix I provides diagrammatical representations of outdoor areas.
	1.8.93	Quasi-outdoor(s) An outdoor area sufficiently weatherproofed to allow the installation of an appliance certified for indoors without affecting its safety, combustion or integrity.
	6.2.4	Restrictions on appliance location A gas appliance shall not be installed- (a) Internally, unless it is designed for indoor installation; or (b) Externally, unless it is designed for outdoor installation. Notes: 1 A gas appliance designed for indoor installation may be installed 'externally' in an enclosure or a quasi-outdoor situation if, following the manufacturer's instructions, the relevant requirements of this Standard are satisfied. 2 A gas appliance designed for outdoor installation may be installed in applications which do not meet the definition of outdoor(s) but are well ventilated. Examples are well ventilated commercial or communal car parks, including underground car parks, if acceptable to the Technical Regulator.
	6.10.19	Gas barbecues and radiant gas heaters for outdoor use Gas barbecues and radiant gas heaters designed for outdoor use shall be installed outdoors or in areas complying with diagrammatical representations in Appendix I of areas that are considered as outdoors. Any enclosure in which the appliance is installed shall comply with one of the following: (a) An enclosure with walls on all sides, but at least one permanent opening at ground level and no overhead cover. (b) Within a partial enclosure that includes an overhead cover and no more than two walls. (c) Within a partial enclosure that includes an overhead cover and more than two walls, the following shall apply—

		(i) at least 25% of the total wall area is completely open; and (ii) at least 30% of the remaining wall area is open and unrestricted. In the case of balconies or verandas, at least 20% of the total of the side, back and front wall areas shall remain open and unrestricted.
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	20(1)	Installing etc. appliances etc., gas fitters' duties as to (1) When a gas fitter installs in a gas installation an appliance or apparatus, part of an appliance or apparatus or a part of the installation the gas fitter must install the appliance, apparatus or part — (a) in a suitable place; and (b) in accordance with any instructions or recommendations of the manufacturer or designer relating to the installation of that appliance, apparatus or part.
	503	Avoidance of hazards (1) An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard. (2) Nothing in this Schedule limits the generality of subclause (1).

Interpretation

Gas barbecues or radiant gas heaters designed for outdoor use are to be installed in areas considered to be outdoors.

With reference to AS/NZS 5601.1, Clause 6.10.19 and Appendix I, areas that are considered to be outdoors are as follows:

- (a) Above ground, open air, with natural ventilation - The area has no overhead cover or walls/structure enclosing the area.
- (b) An enclosure with walls on all sides, but at least one permanent opening at ground level and no overhead cover (Refer AS/NZS 5601.1 Appendix I Figure I1).
- (c) An enclosure (partly enclosed) that includes an overhead cover and no more than two walls (Refer AS/NZS 5601.1 Appendix I Figures I2 and I3).
- (d) An enclosure (partly enclosed) that includes an overhead cover and more than two walls (Refer AS/NZS 5601.1 Appendix I Figures I4 and I5) the following shall apply:
 - (i) At least 25% of the total wall area is completely open; and
 - (ii) At least 30% of the remaining wall area is open and unrestricted.
- (e) An enclosure with openings on one side only (balconies^I or verandas^{II}) shall remain open and unrestricted with this area at least 20% of the total of the side, back and front areas.

Other situations that do not comply with the above, where cross ventilation can occur, there are at least two walls with permanent openings direct to the outside and it can be demonstrated and proven that gas leakage and products of combustion are rapidly dispersed by wind and natural convection may be considered acceptable. EnergySafety must however be contacted for review prior to the installation of appliances in these areas.

Notes:

- I. A balcony is taken to mean an area with a wall or bars around it that is joined to the outside wall of a building on an upper level.
- II. A veranda is taken to mean an area that is partly enclosed, extending along the outside of a building at near ground level.
- III. The balcony or veranda that is shallow in depth and with a roof and three enclosed sides is generally considered an acceptable area if the width is more than 1.5 X depth.

Limitations

Effectively in the outdoor area cases (c) and (d), two walls are to have permanent openings permitting cross ventilation. The total area of the openings must be at least half of the total wall area of the enclosure and remain unobstructed and permanently open.

Date of Issue: April 2017.

Gas Interpretation Number 17/02

Issue
LP Gas cylinders restraint

Relevant Regulation/Standard		
Regulation/Standard	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 1596 - 2014	4.4.11	<p>Installing cylinders</p> <p>This clause requires cylinders to be installed in accordance with requirements, including sub-clause (c) that any cylinder shall be restrained to prevent from falling.</p> <p>NOTE: This includes a cylinder located in an area likely to be subject to flooding or seismic activity. Cylinders greater than 200 L or less than 25 L are typically inherently stable.</p>
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	503	<p>Avoidance of hazards</p> <p>(1) An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard.</p> <p>(2) Nothing in this Schedule limits the generality of subclause (1).</p>

Interpretation
<p>Fixed LP Gas installations, whether with in situ fill or exchange cylinders, full or empty, or in or out of operation shall be restrained to prevent them from falling.</p> <p>This requirement is applicable throughout Western Australia where cylinders are installed in:</p> <p>a) Areas subject to flooding, cyclones, bushfire or seismic activity. This is applicable to cylinders of 3, 4.5, 5, 9, 10, 13.5, 15, 18, 45, 90, 190 and 210 kg nominal mass of gas in the cylinder; or</p> <p>b) All other areas, except those cylinders that are less than 25 L water capacity (10 kg nominal mass of gas in the cylinder) or greater than 200 L water capacity (90 kg nominal mass of gas in the cylinder). This is applicable to cylinders of 13.5, 15, 18, 45 and 90 kg nominal mass of gas in the cylinder.</p>

Limitations
<p>The method of cylinder restraint shall minimize any vertical, horizontal or rotational movement of the upright cylinders. All cylinder displacement which would impose undue strain on the manifold shall be prevented. The total assembly shall be capable of withstanding typical cylinder handling with changeovers.</p> <p>For methods of cylinder restraint in areas subject to flooding, cyclones, bushfire or seismic activity, refer to the Building and Energy publication on <i>LP Gas cylinder safety in bushfire prone areas</i> found on the website www.dmirs.wa.gov.au/energysafety.</p> <p>In all other areas, the cylinder restraint method in areas subject to flooding, cyclones, bushfire or seismic activity can still be applied; however another method could include chaining with a 5 mm chain to a 40 x 3 mm equal angle that is:</p> <ul style="list-style-type: none"> • Bolted to the support structure behind the cylinders for double brick or concrete walls. • Bolted or welded to a separate 75 x 50 x 3 mm steel post set in concrete in the ground behind the cylinders for framed or single brick walls. <p>Any other methods of cylinder restraint used shall be at least of the same strength and capacity.</p> <p>Notes:</p> <p>I. These requirements apply to LP Gas installations in WA after 19 November 2014.</p> <p>II. These requirements do not apply to cylinders connected to mobile appliances or in installations provided for caravans, catering vehicles and marine craft.</p> <p>III. Flexible annealed copper tubes, flexible pigtails and the like are not considered adequate as cylinder restraints.</p>

Date of Issue: April 2017.

Gas Interpretation Number 17/03

Issue
LP Gas cylinder and building corners

Relevant Regulation/Standard		
Regulation/Standard	Regulation/Section/Clause number	Sub-Section/clause heading and contents
AS/NZS 1596 - 2014	4.4.3(d)	Prohibited locations for cylinders This clause requires any cylinder and its associated equipment not to be installed in a location (d) where nearby constructions, fences, walls or vapour barriers could prevent cross-ventilation.
Gas Standards (Gasfitting and Consumer Gas Installations) Regulations 1999	503	Avoidance of hazards (1) An appliance, cylinder, flue, fitting line or other apparatus must not, by its construction, use or positioning, constitute a hazard. (2) Nothing in this Schedule limits the generality of subclause (1).

Interpretation
An LP Gas cylinder can be installed against the inside of a return wall or internal corner or on the outside of a return wall or external corner provided cross ventilation is not prevented.

Limitations
LP Gas vapours must be able to be dissipated by natural ventilation in this location. Ideally there should also be a minimum clearance of 150 mm allowed on either side of the cylinder to facilitate handling. The angle of the return wall or internal corner is not to be less than a right angle (90 degrees).

Date of Issue: April 2017.